

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/815,050	CSERMAK ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Daniel Swerdlow	2615	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 04 December 2006.
2. ☒ The allowed claim(s) is/are 1-7 and 25-37.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

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|---|--|
| <ol style="list-style-type: none"> <li>1. <input type="checkbox"/> Notice of References Cited (PTO-892)</li> <li>2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</li> <li>3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br/>Paper No./Mail Date _____</li> <li>4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br/>of Biological Material</li> </ol> | <ol style="list-style-type: none"> <li>5. <input type="checkbox"/> Notice of Informal Patent Application</li> <li>6. <input type="checkbox"/> Interview Summary (PTO-413),<br/>Paper No./Mail Date _____</li> <li>7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment</li> <li>8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance</li> <li>9. <input type="checkbox"/> Other _____</li> </ol> |
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### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Joseph M. Sauer, reg. no. 47,919 on 26 February 2007.

The application has been amended as follows: In the Claims: Claims 30 and 35 are amended as follows (markup with respect to amendment filed 4 December 2006)

Claim 30 (currently amended): An apparatus comprising:

a hearing aid including an outer microphone configured to be directed outside an ear canal and a speaker configured to be directed into the ear canal, the hearing aid being configured to: receive sounds through the outer microphone and output the sounds through the speaker; and concurrently with the receive and output step and without participation of an external device or person, monitor a performance parameter of the hearing aid, determine a malfunction from a value of the parameter, and generate an a perceptible indication of the malfunction.

Claim 35 (currently amended): An apparatus comprising:

a hearing aid including a battery for powering the hearing aid, an outer microphone configured to be directed outside an ear canal and a speaker configured to be directed into the ear canal, the hearing aid being configured to:

receive sounds through the outer microphone and output the sounds through the speaker and concurrently detect a malfunction in response to a variation in current drain of the battery exceeding a threshold value; and

generate an indication of a the malfunction ~~in response to a variation in current drain of the battery exceeding a threshold value.~~

2. The following is an examiner's statement of reasons for allowance:

3. Regarding Claim 1, US Patent 5,584,869 to Heck et al. discloses a hearing aid (Fig. 4, reference 10) that includes a microphone 12, a speaker 80 and an internal microphone 90 (i.e., a plurality of transducers) with a system for detecting failure (i.e., a self-diagnostics system) (column 3, lines 13-18) comprising: a signal processor 14 that corresponds to the detection circuitry claimed and detects and reports distortion (i.e., monitors the functional status of at least one transducer) (column 9, lines 60-64) by determining a signal-to-noise ratio (column 10, lines 3-8) that inherently measures a signal energy output of the transducer and comparing the signal-to-noise ratio to a prescribed threshold. Heck also discloses detection of the output of the internal microphone to determine if the speaker is reproducing an incoming signal from the external microphone (column 9, lines 45-52), which also involves comparing the internal microphone output to the external microphone output (i.e., a predetermined threshold). In either case, the signal processor generates an alarm signal that corresponds to the error message output claimed and triggers an alarm device that corresponds to the memory device claimed and stores and communicates the error message (column 5, lines 44-49). Because the alarm device requires only a triggering signal to indicate the error, it inherently includes a memory device. Further, as stated above, the detection is performed by monitoring an internal (i.e., inner) microphone. Therefore, Heck anticipates all elements except that Heck utilizes the signal from the external microphone instead of the test tone generator claimed. US Patent 6,879,692 to Nielsen et al. discloses a self-testing hearing aid that uses a test tone generator (Fig. 1, reference 40; column 4, lines 46-50). However, Nielsen discloses only detection of the test tone by an outer microphone with the hearing aid in a hard walled container (column 2, lines 38-47). As such, the prior art

fails to disclose a test tone directed into the ear canal and monitored by an inner microphone, as claimed. Because the prior art fails to disclose every element of the claimed invention, Claim 1 is allowable.

4. Claims 2 through 7 are allowable due to dependence from Claim 1.

5. Claim 25 is allowable for reasons stated in the prior Office action, mailed on 11 October 2006.

6. Claims 26 through 29 are allowable due to dependence from Claim 25.

7. Regarding Claim 30, Heck discloses a hearing aid (Fig. 4, reference 10) including a microphone 12 that corresponds to the outer microphone claimed, and a speaker 80 directed into the ear canal (column 9, lines 35-41), the hearing aid configured to: receive pressure waves (i.e., sounds) through the microphone 12 that corresponds to the outer microphone claimed and output the sounds through the speaker 80 (column 9, lines 21-35); and monitor a level of distortion (i.e., a performance parameter of the hearing aid) (column 9, line 60-column 10, line 8), determine that the output of the speaker is unreliable (i.e., a malfunction) and generate an alarm signal (i.e., an indication of the malfunction). However, Heck discloses generation of an alarm signal that triggers an alarm device. As such, Heck fails to disclose generation of a perceptible malfunction indication without participation of an external device, as claimed. Because the prior art fails to disclose every element of the claimed invention, Claim 30 is allowable.

8. Claims 31 through 34 and 36 are allowable due to dependence from Claim 30.

9. Regarding Claim 35, US Patent 4,049,930 to Fletcher et al. discloses a hearing aid (Figs. 1, 2) including a battery 16 (column 5, lines 11-13), a microphone 10 (column 4, lines 19-21) that corresponds to the outer microphone claimed and an ear piece 14 (column 4, lines 24-27)

that corresponds to the receiver claimed, the hearing aid configured to: produce an electrical output signal which is an amplified version of the signal from the microphone 10 and feed the output signal to a speaker, or ear piece, 14 which converts the signal to an audio signal to be heard by the user (i.e., receive sounds through the outer microphone and output the sounds through the speaker; and activate a warning system 30 (i.e., generate an indication of a malfunction) (column 5, line 21) in response to the voltage output of the battery being less than a predetermined reference voltage (column 5, lines 17-21). Due to the internal resistance inherent in any battery, the output voltage decreases as the output current increases. As such, an increase in current drain to a certain value inherently causes a voltage drop to a certain value. Therefore, Fletcher inherently discloses generating an indication of a malfunction in response to a variation in current drain of the battery exceeding a threshold value. However, Fletcher discloses only testing battery voltage during a test time interval when the hearing aid microphone is switched out of the circuit and, as such, fails to disclose receiving sounds through the outer microphone and outputting the sounds through the speaker while concurrently detecting a malfunction in response to a variation in current drain of the battery exceeding a threshold value, as claimed. Because the prior art fails to disclose every element of the claimed invention, Claim 35 is allowable.

10. Claims 37 is allowable due to dependence from Claim 30.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Swerdlow whose telephone number is 571-272-7531. The examiner can normally be reached on Monday through Friday between 7:30 AM and 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh H. Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Daniel Swerdlow  
Primary Examiner  
Art Unit 2615

ds  
27 February 2007